What is Claimed Is:

1. A method of capturing measurement data for a plurality of physical parameters measured during a test, comprising:

receiving a selection of a parameter from among the plurality of physical parameters, from a user;

5 receiving a selection of a condition with respect to measurement of the selected parameter, from the user;

during the test, processing measurement data regarding each of the plurality of physical parameters, and analyzing a relationship of the measurement data for the selected parameter to the selected condition; and

10 when the analysis determines that the selected condition has occurred in relation to the measurement data for the selected parameter, triggering capture of measurement data for the plurality of physical parameters for review by the user.

2. The method of claim 1, wherein:

the processing of the measurement data regarding each of the plurality of physical parameters includes receiving diagnostic signals that may include a plurality of codes, from an on-board diagnostic system of a vehicle;

5 the steps of receiving the selection of the parameter and receiving the selection of the condition comprise receiving a selection of a trouble code regarding a particular vehicle condition from among codes that may be received; and

the analyzing of the relationship of the measurement data for the selected parameter to the selected condition comprises detecting receipt of the selected trouble code.

3. The method of claim 1, wherein the processing of the measurement data regarding each of the plurality of physical parameters includes measuring the plurality of physical parameters to develop measurement data with respect to each of the measured physical parameters.

4. The method of claim 3, wherein the analyzing of the relationship of the measurement data for the selected parameter to the selected condition comprises detecting

occurrence of predetermined event in the measurement data developed for the selected parameter.

5.   The method of claim 4, wherein the predetermined event comprises an event chosen from a group of events consisting of: rising to a threshold value in the measurement data developed for the selected parameter, falling to a threshold value in the measurement data developed for the selected parameter, a leading edge in a signal pattern of the

5   measurement data developed for the selected parameter, a trailing edge in a signal pattern of the measurement data developed for the selected parameter, a predetermined differential in the measurement data developed for the selected parameter, and a predetermined integral of the measurement data developed for the selected parameter.

6.   The method of claim 3, wherein the analyzing of the relationship of the measurement data for the selected parameter to the selected condition comprises detecting a selected number occurrences of a predetermined event in the measurement data developed for the selected parameter.

7.   The method of claim 1, further comprising:

receiving a selection of another parameter from among the plurality of physical parameters, from a user;

receiving a selection of another condition, with respect to measurement of the other

5   selected parameter, from the user; and

analyzing a relationship of the measurement data for the other selected parameter to the other selected condition;

wherein the triggering of capture of measurement data is dependent on a selected logical relationship of detection of the selected condition and detection the other selected

10   condition.

8.   The method of claim 7, wherein the selected relationship of the selected conditions is a concurrent Boolean logic relationship.

9.   The method of claim 7, wherein the selected relationship of the conditions comprises occurrence of the selected conditions in a predetermined consecutive order.

10. The method of claim 1, wherein the step of analyzing comprises detecting that the measurement data for the selected parameter meets the selected condition for a predetermined period of time.

11. The method of claim 1, wherein the plurality of physical parameters are operational parameters of a vehicle.

12. The method of claim 11, wherein the operational parameters of the vehicle include at least one engine performance parameter.

13. The method of claim 1, wherein:

the processing of the measurement data comprises buffering measurement data regarding each of the plurality of physical parameters for a predetermined interval during the test; and

the triggered capture of measurement data comprises storing buffered data for the plurality of physical parameters for review by the user.

14. The method of claim 13, wherein the buffered data stored by triggering upon determination of occurrence of the selected condition stores data obtained during an interval with a predetermined relationship to the time of the occurrence of the selected condition.

15. The method of claim 1, wherein the triggered capture of measurement data comprises storing measurement data regarding each of the plurality of physical parameters for a point in time substantially corresponding to the occurrence of the selected condition.

16. The method of claim 1, wherein the selected parameter relates to speed, the selected condition is a predetermined speed, and the method further comprises capturing time from start until a monitored vehicle reaches the predetermined speed.

17. A diagnostic tool, comprising:

means for obtaining measurement data regarding each of a plurality of physical parameters to be tested;

a central processing unit for receiving and processing the measurement data; and

5   a user interface coupled to the central processing unit, for supplying user inputs of a selection of a parameter from among the physical parameters to be tested and a specification of condition relating to the selected parameter to the central processing unit, and for providing an output of information from the central processing unit to the user; and

a memory, wherein:

10   the central processing unit is adapted for causing the memory to store a portion of the measurement data regarding each of the physical parameters in response to detection of occurrence of the selected condition in relation to the selected parameter during execution of a test, and

the central processing unit is adapted for causing output of the stored portion of the

15   measurement data via the user interface.

18.   The diagnostic tool of claim 17, wherein the means is adapted for obtaining the measurement data regarding each of the physical parameters during testing of a vehicle.

19.   The diagnostic tool of claim 18, wherein the means is adapted for obtaining measurement data regarding a plurality of engine analysis parameters during operation of an engine of the vehicle.

20.   The diagnostic tool of claim 17, wherein the user interface comprises:

at least one user input device, for actuation of by the user, to input the selection of a parameter and the specification of a condition; and

a display for visual output of the stored measurement data to the user.

21.   The diagnostic tool of claim 17, wherein the display comprises a graphical display for displaying graphs of measured data for a plurality of the parameters.

22.   The diagnostic tool of claim 17, wherein the memory buffers real-time measurement data regarding the physical parameters during the test, and the central processing unit causes the memory to store the buffered data at a time related to the detection of occurrence of the selected condition, as the portion of the measurement data.

23.   The diagnostic tool of claim 22, wherein the user interface enables real-time replay from the memory of the buffered data from the time related to the detection of occurrence of the selected condition.

24.   The diagnostic tool of claim 17, wherein the means for obtaining measurement data comprises an interface for receiving the measurement data regarding the plurality of physical parameters from an on-board diagnostic system of a vehicle.

25.   The diagnostic tool of claim 17, wherein the means for obtaining measurement data comprises a meter for measuring the plurality of physical parameters.

26.   A product comprising programming embodied in or carried on a machine readable medium, wherein the programming is adapted for causing a processor running the programming to perform a sequence of operations for capturing measurement data for a plurality of physical parameters measured during a test, the operations comprising:

5   receiving a selection of a parameter from among the plurality of physical parameters, from a user;

receiving a selection of a condition with respect to measurement of the selected parameter, from the user;

during the test, processing measurement data regarding each of the plurality of

10   physical parameters, and analyzing a relationship of the measurement data for the selected parameter to the selected condition; and

when the analysis determines that the selected condition has occurred in relation to the measurement data for the selected parameter, triggering capture of measurement data for the plurality of physical parameters for review by the user.

27.   The product of claim 26, wherein the operations performed further comprise replaying the captured data to a user after completion of the test.